

A FLORISTIC INVENTORY OF DISMAL KEY AND FAKAHATCHEE ISLAND—  
TWO SHELL MOUNDS SITUATED WITHIN THE TEN THOUSAND ISLANDS  
REGION IN THE GULF OF MEXICO (COLLIER COUNTY, FLORIDA)

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ABSTRACT

Dismal Key and Fakahatchee Island are islands and shell mounds situated within the Ten Thousand Islands region in the Gulf of Mexico. Each island has three main kinds of habitats: coastal hardwood hammock, insolated terrain, and mangrove. The islands exhibit 63 families, 138 genera, and 172 species of vascular plants, collectively. One hundred and twenty-seven species are native to Florida. Sixteen species are listed as endangered or threatened within Florida. *Celtis iguanaea*, present on Dismal Key, might exist at solely three other locations in Florida.

KEY WORDS: Dismal Key, Fakahatchee Island, flora, shell mounds, vascular plants

RESUMEN

Cayo Dismal y Fakahatchee Island son islas y depósitos de caparazones situados en la región de las Diez Mil Islas en el Golfo de México. Cada isla tiene tres tipos principales de hábitats: hileras de leñosas costeras, terreno soleado, y manglares. Las islas contienen 63 familias, 138 géneros, y 172 especies de plantas vasculares, colectivamente. Ciento veintisiete especies son nativas de Florida. Diez y seis especies están listadas como en Peligro o amenazadas en Florida. *Celtis iguanaea*, presente en Cayo Dismal, pudiera existir únicamente en otras tres localidades en Florida.

INTRODUCTION

This is the third of a series of papers focused on the flora of southwestern Florida (Wilder & McCombs 2006; Wilder & Roche 2009). Herein, we present the results of a study of the native and nonnative taxa of vascular plants growing wild on Dismal Key and Fakahatchee Island.

Dismal Key and Fakahatchee Island are, simultaneously, islands and massive shell mounds situated 3.7 miles apart within the Ten Thousand Islands region in the Gulf of Mexico, in Collier Co., Florida (Figs. 1, 2). The two islands are centered at N 25°53'27" and W 81°33'28", and at N25°52'15" and W 81°29'25", respectively. The area of each island is, approximately, 73 acres (Beriault et al. 2003). Beriault et al. (2003) ranked both islands, together with Chokoloskee Island and Russell Key, as "... the four largest and most extensive shell mound complexes in the Ten Thousand Islands." On each of the two islands the maximum elevation exceeds 20 feet (South Florida Water Management District 2010).

Prehistoric Indians constructed both islands from shells over a prolonged time period. The islands served them as platforms for habitation and, possibly, as waste dumps. Schwadron (2010) concluded, based on data from radio-carbon dating, that for large mounds ("shell work sites") within the Ten Thousand Islands region, most construction seems to have occurred from about 1900 to 900 years before the present, with a possible peak in construction at ca. 1600 to 1300 years before the present; however, parts of Dismal Key and Fakahatchee Island might be considerably older than that, according to studies of Horr's Island (an island within the Ten Thousand Islands region situated 5.6 miles northwest of Dismal Key). Based on data derived from radio-carbon dating, Russo (1991) concluded that Indians occupied the western portion of Horr's Island primarily between 3000 and 4000 years before the present, and to a lesser extent even earlier and later. The Calusa Indians were likely the last of a series of prehistoric/historic tribes to inhabit the Ten Thousand Islands.

Non Indians decimated and evicted the Indians and settled Dismal Key and Fakahatchee Island. Beriault



FIG. 1. Aerial photograph of Dismal Key. **C**. Coastal hardwood hammock. **Ca**. Three trenches interpreted as canals. **I**. Insolated terrain; labeled from left to right are the western, median, and eastern crescents. **M**. Mangrove habitat. **S**. Apparent seawall. This photograph (without labels) was provided by the Office of the Collier County Property Appraiser and modified by Jill Schmid.



FIG. 2. Aerial photograph of Fakahatchee Island. **C.** Coastal hardwood hammock. **Ca.** Trench interpreted as a canal. **I.** Insolated terrain; labeled, are the broad median crescent (upper I) and the narrow, much interrupted crescent (lower I) that exists near the southern and eastern shores of the Island. **M.** Mangrove habitat. **S.** Apparent seawall. This photograph (without labels) was provided by the Office of the Collier County Property Appraiser and modified by Jill Schmid.

et al. (2003) reported historic artifacts and refuse from Dismal Key dating from the 1870s onward, and they indicated evidence for at least three distinct historic home sites on the Island. They also quoted from observations made by Hrdlička, in 1918, that much “high ground” on Dismal Key was then under cultivation. Also, until approximately 1980, a succession of hermits occupied a house on Dismal Key that was constructed, perhaps, in the 1920s or 1930s (Seely 2010). Fakahatchee Island was reportedly settled as early as 1870 (Tebeau 1966) and was subjected to “... long and intensive use by historic white settlers” (Beriault et al. 2003). The inhabitants farmed, raised livestock on, and fished near the Island. They constructed houses (including a schoolhouse), cisterns, and a small cemetery, and they left behind various artifacts. They departed from Fakahatchee Island, probably during the early-to-mid-1950s (Beriault et al. 2003; Seely 2010).

Today the islands are uninhabited and are included within a group of overlapping preserves. Dismal Key belongs both to the Ten Thousand Islands Aquatic Preserve and to the Ten Thousand Islands National Wildlife Refuge. Fakahatchee Island is included within the Ten Thousand Islands Aquatic Preserve. The Ten Thousand Islands Aquatic Preserve and Rookery Bay Aquatic Preserve, jointly, compose the Rookery Bay National Estuarine Research Reserve (Burch 1998).

We undertook the present study for three main reasons. First, we wished to compile a list of the plant species present on both islands. There existed no thorough, previously published flora or list of voucher specimens for either Island; however, Beriault et al. (2003) had produced a brief, undocumented list of species for each island; Burch (1998) had published an inventory of the vascular plants of the Rookery Bay National Estuarine Research Reserve; and, Barry (2009) had compiled unpublished lists of endangered, threatened, and exotic species of the Ten Thousand Islands National Wildlife Refuge. Second, we wished to document the island floras by vouchering inventoried species. Third, by implementing study immediately, rather than by delaying until the future, we desired to preempt the continuing rise in sea level that is likely to alter, and to eventually inundate, both islands.

Herein, besides addressing the three objectives, aforementioned, we briefly characterize the topography of the islands and certain relicts of human habitation, we describe the main kinds of habitats present on each island and we indicate the species that occupy each kind, and we compare Dismal Key and Fakahatchee Island, floristically, to other areas.

#### METHODS

George Wilder visited Dismal Key 23 times, from May 8, 2010 through Jan. 7, 2012, and Fakahatchee Island 24 times, from Aug. 6, 2009 through Dec. 10, 2011. Beginning in the early 1990s, Michael Barry independently visited the Islands, focusing greatest attention on them during 2005 through 2009. For each island, during our entire study each month of the year was represented by one or more visits; however, in any year we did not always visit an island during any two successive months. George Wilder vouchered species with dried herbarium specimens that were deposited at the Herbarium of Southwestern Florida (SWF), housed at the Naples Botanical Garden (Appendix 1). We characterize species as native, exotic, and endemic to Florida, according to Wunderlin and Hansen (2011), with the exception of *Carica papaya*, where we follow Ward (2011) and consider this species to be native. Mostly, our nomenclature follows Wunderlin and Hansen (2011); however, Appendix 1 (footnote 1) specifies nomenclatural differences between that work and the present paper.

#### RESULTS AND DISCUSSION

##### **Topography and relicts of former habitation**

Beriault et al. (2003) and Schwadron (2010) have provided detailed descriptions of these aspects. Presented here is a brief account that reflects personal observations. Dismal Key and Fakahatchee Island exhibit low-lying, relatively flat substrate, but additional topographic features interrupt the flat areas. For example, each island exhibits a prominent curved band of elevated substrate connecting two sides of the island; each band consists of conjoined, short ridges oriented perpendicular to the band's long axis. The islands are characterized by additional ridges. Some ridges occur inland, but on Dismal Key there also exists a massive ridge (an appar-

ent seawall) situated just landward of the island's southern margin (i.e., in a position facing open ocean; Fig. 1, S); this seawall manifests a long extension that continues northeastward from the main body of the island. Fakahatchee Island exhibits a less obvious seawall (Fig. 2, S). An isolated tall mound known as Youman's Mound occurs within the westernmost hammock on Fakahatchee Island. Also, regularly spaced trenches—interpreted as the remnants of Indian canals—are oriented perpendicular to the shoreline, both along the western portion of Dismal Key and along the eastern and southern parts of Fakahatchee Island (Figs. 1, 2, Ca). A long trench extends northeastward across Fakahatchee Island. Mangrove vegetation dominates all trenches, aforementioned.

Both islands manifest relicts of the non Indian inhabitants. Cisterns occur on each island. The small cemetery (now enclosed by coastal hardwood hammock) remains on Fakahatchee Island. Likewise, on Fakahatchee Island there exists one (perhaps, a group of two) isolated grave(s) within the apparent seawall; an accompanying headstone memorializes Elizabeth Hart and her date of death (1892).

### Habitats

Each island exhibits three main kinds of habitats: mangrove habitat, insolated terrain, and coastal hardwood hammock. In the aerial photograph of Fakahatchee Island (from 2009) these habitats appear dark green, ca. cream colored, and light green, respectively (Fig. 2, M, I, C). Insolated terrain is either barren or manifests low-growing vegetation, and its shell substrate is commonly exposed. In coastal hardwood hammock, topsoil covers the shell substrate.

Each island exhibits peripheral mangrove vegetation and mangrove habitat also occupies depressed areas inland (including the apparent Indian canals; Figs. 1, 2, M).

Insolated terrain defines three crescents on Dismal Key and two on Fakahatchee Island. On Dismal Key there occur a western crescent (traversed by the apparent canals), a median crescent, and an eastern crescent (Fig. 1, I). Crescents of insolated terrain are less defined on Fakahatchee Island, which exhibits one narrow crescent near the eastern and southern shores of the Island, and a broad median crescent (Fig. 2, I); both crescents are interrupted—that to the east and south being interrupted by canals, and both crescents being penetrated by other stands of trees and shrubs (Fig. 2). On each island some insolated terrain is remote from the crescents.

Coastal hardwood hammock covers the remainder of each island. On Dismal Key, hammock composes a large stand between the western and median crescents of insolated terrain (Fig. 1, C). On Fakahatchee Island, hammock defines a broad stand between the two crescents of insolated terrain; it also composes smaller stands northward and westward on the Island (Fig. 2, C). The westernmost stand of hammock is especially well developed and includes certain plant species that are absent from the other stands (*Chrysophyllum oliviforme*, *Mangifera indica*, *Petiveria alliacea*, *Psidium guajava*). On both islands hammock predominates on the elevated bands of substrate and it also lines the apparent seawalls and additional higher shell ridges.

Concentrated in places on each island, are armed species that manifest spines, thorns, and prickles, collectively: *Acacia tortuosa*, *Acanthocereus tetragonus*, *Agave decipiens*, *Celtis iguanaea*, *Erythrina herbacea*, *Opuntia humifusa*, *Opuntia stricta*, *Pisonia aculeata*, *Pithecellobium unguis-cati*, *Randia aculeata*, and *Sideroxylon celastrinum*. In particular, the dense concentrations of *A. tetragonus* and *O. stricta* (spinous species of Cactaceae) render parts of each island challenging and painful to traverse. Small (1922) reported comparable habitat at Caxambas (habitat no longer present there), a part of Marco Island within the Ten Thousand Islands region. Small indicated "...hills nearer the water ... clothed with hammock which was made almost impenetrable by entanglements of prickly-pear [*Opuntia* sp.] and dildoe [*Acanthocereus tetragonus*], as well as by scraggly armed shrubs, all of which were laced together in the course of their growth." Based on Schimper (1903), Dismal Key and Fakahatchee Island—especially, their hammocks—likewise resemble the thorn-woodlands (including caatingas) that are widespread and often coastal within the American tropics.

### Taxonomic Analysis of Present Data

The floras of both islands, collectively, include 63 families, 138 genera, and 172 species (not including sterile *Kalanchoe* sp. from Dismal Key, which might be equivalent to a *Kalanchoe* species from Fakahatchee Island;

Appendix 1). Between parentheses, for both islands together the numbers of families, genera, and species are indicated, respectively, for each of the following major groups of vascular plants: pteridophytes (2, 3, 3), angiosperms (61, 135, 169), monocotyledons (9, 23, 39) and dicotyledons (52, 112, 130). For species of each major group, their percentage of all 172 species is listed: pteridophytes, 1.7%; angiosperms, 98.3%; monocotyledons, 22.7%; and dicotyledons, 75.6%.

For both islands, collectively, the five largest families of monocotyledons, as gauged by the numbers of species present, are Poaceae (18), Bromeliaceae (8), Cyperaceae (5), Agavaceae (2), and Orchidaceae (2) (for each family, the number of species is listed between parentheses). The eleven largest families of dicotyledons on both islands, as gauged by the numbers of species present, are Fabaceae (15), Asteraceae (9), Euphorbiaceae (6), Solanaceae (6), Convolvulaceae (5), Malvaceae (5), Amaranthaceae (4), Cactaceae (4), Myrtaceae (4), Rubiaceae (4), and Sapotaceae (4).

Fakahatchee Island supports more species than does Dismal Key (151 vs. 135 species, respectively). Of all 172 species present, 113 species (65.7% of species) are shared by both islands. Gymnosperms and oaks are absent from the islands.

### Species and Habitats

Habitat data presented herein are a summation of data from both islands. We noted: (1) one hundred and twenty-six species within insolated terrain; (2) ninety-four species within coastal hardwood hammock; and (3) thirty-six species within mangrove habitat (Appendix 1). We observed certain species solely at habitat boundaries: between insolated terrain and coastal hardwood hammock (9 species); between insolated terrain and mangrove habitat (5 species); and between coastal hardwood hammock and mangrove habitat (1 species). *Acalypha ostryifolia* and *Lantana camara* grew only within the cemetery on Fakahatchee Island. *Antigonon leptopus* (not tallied above) and *Senna ligustrina* (tallied above solely for insolated terrain) grew both within the cemetery and at the boundary between coastal hardwood hammock and insolated terrain.

Individuals of *Tillandsia* species are abundant on both islands and we noted all eight of the observed *Tillandsia* species in all of the three main kinds of habitats (Appendix 1). Twelve species of other genera also occur in all three habitat types: *Acanthocereus tetragonus*, *Alternanthera flavescens*, *Capparis flexuosa*, *Capparis jamaicensis*, *Cissus verticillata*, *Conocarpus erectus*, *Encyclia tampensis*, *Ipomoea indica*, *Opuntia stricta*, *Pisonia aculeata*, *Schinus terebinthifolia*, and *Sideroxylon celastrinum*.

### Native and Endemic Taxa

Native species included 127 of the 172 species (73.8%) recorded (this calculation does not include *Oxalis* sp., which was sterile and, therefore, not clearly native or exotic; Appendix 1). Dismal Key and Fakahatchee Island exhibit 111 and 113 native species, respectively, these numbers representing 82.2% and 74.8% of species on each of the islands, respectively. *Agave decipiens*, noted from both islands, is the sole species presently reported that is endemic to Florida.

### Native Species Listed as Rare in Florida

The two islands are havens for rare species (Table 1). Sixteen presently reported species (12.6% of all native species present) are listed as Endangered (nine species) or Threatened in Florida (seven species; Weaver & Anderson 2010). For South Florida, one species listed as Historical and three listed as Critically Imperiled (Gann et al. 2002) were documented during this study. Occurring on both islands, are each of six endangered species (*Cheilanthes microphylla*, *Cyperus filiformis*, *Gossypium hirsutum*, *Setaria chapmanii*, *Tillandsia fasciculata*, and *Tillandsia utriculata*) and each of six threatened species (*Acanthocereus tetragonus*, *Chrysophyllum oliviforme*, *Myrcianthes fragrans*, *Opuntia stricta*, *Tillandsia balbisiana*, and *Tillandsia flexuosa*). Dismal Key exhibits two additional endangered species (*Acacia tortuosa*, *Celtis iguanaea*) and Fakahatchee Island manifests one additional endangered species (*Celosia nitida*) and one other threatened species (*Maytenus phyllanthoides*).

*Acanthocereus tetragonus*, *Opuntia stricta*, and *Cyperus filiformis* are abundant on both islands. During 2010, we saw thousands of individuals of *C. filiformis* on Fakahatchee Island, but that species was hard to find there in 2011; during 2011, we also observed hundreds of plants at localized sites on Dismal Key. Previously, in

TABLE 1. List of the species of rare plants of Dismal Key and Fakahatchee Island. Rankings of rarity are for Florida (Weaver & Anderson 2010) and for south Florida (Gann et al. 2002). **Crit. Imp.** = critically imperiled; **End.** = endangered; **Hist.** = historical; **Threat.** = threatened.

Taxon	Weaver & Anderson (2010)	Gann et al. (2002)
<i>Acacia tortuosa</i>	End.	Hist.
<i>Acanthocereus tetragonus</i>	Threat.	
<i>Celosia nitida</i>	End.	
<i>Celtis iguanaea</i>	End.	Crit.Imp.
<i>Cheilanthes microphylla</i>	End.	Crit.Imp.
<i>Chrysophyllum oliviforme</i>	Threat.	
<i>Cyperus filiformis</i>	End.	Crit.Imp.
<i>Gossypium hirsutum</i>	End.	
<i>Maytenus phyllanthoides</i>	Threat.	
<i>Myrcianthes fragrans</i>	Threat.	
<i>Opuntia stricta</i>	Threat.	
<i>Setaria chapmanii</i>	End.	
<i>Tillandsia balbisiana</i>	Threat.	
<i>Tillandsia fasciculata</i>	End.	
<i>Tillandsia flexuosa</i>	Threat.	
<i>Tillandsia utriculata</i>	End.	

1965 in the Ten Thousand Islands region, Olga Lakela had collected *C. filiformis* on Chokoloskee Island, but that locality was later developed, probably eliminating the species there (Gann et al. 2002).

Several listed species are confined to a single to several sites on each island (*Cheilanthes microphylla*, *Gossypium hirsutum*, *Setaria chapmanii*). In Florida, *Cheilanthes microphylla* is known from six counties situated within the southern, central, and northern portions of the Florida peninsula and within the Florida Panhandle (Wunderlin & Hansen 2011a). Previous workers had reported *C. microphylla* from three localities located in the Ten Thousand Islands region: Turner River Mound, Horr's Island, and an unspecified island in Addison Bay; however, the Horr's Island population may no longer survive. There also exists a questionable report of *C. microphylla* from Miami-Dade County (Gann et al. (2002).

*Acacia tortuosa* was formally reported from Florida, solely from three localities situated within the Ten Thousand Islands region: Chokoloskee Island, Dismal Key, and Ferguson's Mound; however, the Chokoloskee plants were likely destroyed (Barry 2009; Gann et al 2002; Wunderlin & Hansen 2011a). Recently, Jimi Sadle, botanist at the Everglades and Dry Tortugas National Parks, has also observed *A. tortuosa* within the Ten Thousand Islands region, at Russel Key and Sandfly Island (pers. comm. to Michael Barry, of Feb. 29, 2012).

On Fakahatchee Island we noted *Chrysophyllum oliviforme* only in rich hammock by the island's western end, but the species was more widespread on Dismal Key. *Maytenus phyllanthoides* was limited to two small, closely associated sites on Fakahatchee Island.

*Celtis iguanaea* is the rarest listed species that we encountered, and we observed it solely at one site on Dismal Key. Always scarce in Florida, it may now persist there solely on Dismal Key and on three other islands within the Gulf of Mexico: Big Mound Key (Charlotte Co.), Gopher Key (Monroe Co.), and Mound Key (Lee Co.). According to Gann et al. (2002), earlier workers had documented *C. iguanaea* in south Florida, on Horr's Island (within the Ten Thousand Islands region) and on Sanibel Island, Captiva Island, and Mound Key (additional islands within the Gulf of Mexico); however, *C. iguanaea* was extirpated, or probably extirpated, later on, on the first three of those islands (Gann et al. 2002). (Mitch Thompson—an amateur botanist and former surveyor of Horr's Island—personally observed that the single plant on Horr's Island was dug-up during archaeological research [personal communication to George Wilder, of Dec. 15, 2011]). One of us (Michael Barry) discovered *C. iguanaea* at Big Mound Key (in 1993) and, together with Ian Bartoszek, he also found it at Gopher Key (in 2010)—two locations where the species likely persists (unpublished information).

*Celtis iguanaea* is a tropical species that reaches a northern limit in south Florida. It ranges from south Florida, Texas, and the Bahama Islands southward through Mexico and Mesoamerica to Peru, Paraguay, and

Uruguay (Austin 2004; Correll & Correll 1982). The plants are described as trees, shrubs, and climbing shrubs (Austin 2004; Correll & Correll 1982; Gann et al. 2002; Long & Lakela 1976; Nelson 1996); however, the individuals at Dismal Key were vines that extended both along the ground and high into the forest canopy. The main stems were thick, thorny, and ropelike, and a stem and its branches, jointly, sometimes approached 100 feet long. We suspect that our material was a clone, because (a) one thick stem was rooted at two separate places along the ground, suggesting possible asexual reproduction, (b) all vines were rooted fairly close to one another, and (c) fruits were rare, suggesting possible absence of cross pollination.

### Species that are Rare on Dismal Key and Fakahatchee Island

On each island there exists a considerable number of species that are represented solely by one to several individuals or presumed clones. Those species, indicated in Appendix 1, vary from rare to common in Florida, overall.

### Exotic Species

Forty-four species are exotic within Florida (not counting *Kalanchoe* sp; Appendix 1). Certain exotic species are probably escapes from previous cultivation on the islands. They include fruit trees (*Annona squamosa*, *Citrus* sp., *Dimocarpus longan*, *Mangifera indica*, *Manilkara zapota*, *Psidium guajava*, *Spondias purpurea*) and other horticultural plants (*Agave sisalana*, *Aloe vera*, *Antigonon leptopus*, *Catharanthus roseus*, *Cereus repandus*, *Cryptostegia grandiflora*, *Delonix regia*, *Euphorbia tirucalli*, *Jatropha gossypifolia*, *Kalanchoe* species, *Lantana camara*, *Leucaena leucocephala*, *Sansevieria hyacinthoides*, *Schinus terebinthifolia*, *Senna atomaria*, *Tecoma stans*, and *Thespesia populnea*). Escapes are most problematical on Fakahatchee Island, where six species, aforementioned, compose dense colonies: *Aloe vera*, *Cereus repandus*, *Agave sisalana*, *Euphorbia tirucalli*, *Sansevieria hyacinthoides*, and *Schinus terebinthifolia*. *Schinus terebinthifolia* is also problematical on Dismal Key.

The Florida Exotic Pest Plant Council (FLEPPC) recognizes two categories of plant species exotic within Florida, that pose especial threats to the ecology of the State, overall, i.e., Category I and Category II (these categories indicate decreasing degree of threat; Florida Exotic Pest Plant Council 2011). We noted seven Category I species: three from both islands (*Manilkara zapota*, *Melinis repens*, and *Schinus terebinthifolia*) and four solely from Fakahatchee Island (*Colubrina asiatica*, *Lantana camara*, *Psidium guajava*, and *Thespesia populnea*). Seven Category II species also occurred: three from both islands (*Antigonon leptopus*, *Dactyloctenium aegyptium*, and *Stachytarpheta cayennensis*) and four from Fakahatchee Island (*Agave sisalana*, *Kalanchoe pinnata*, *Leucaena leucocephala*, and *Sansevieria hyacinthoides*). The Category I and Category II species on both islands comprised 9.3% and 9.6% of all 75 Category I species and 73 Category II species recognized for Florida, respectively.

### Comparisons with Previous Studies

Previous workers, apparently, collected minimally on Dismal Key and Fakahatchee Island. Although, we visited four virtual herbaria, we located solely five herbarium specimens collected from the islands, from FTG and USF (The New York Botanical Garden 2011; University of Florida Herbarium Collections Catalog 2011; Virtual Herbarium 2011; Wunderlin & Hansen 2011a.). The specimens, which represented four species, were from Dismal Key (*Leptochloa dubia*, *Senna atomaria*) and Fakahatchee Island (*Eugenia axillaris*, *Piscidia piscipula*). We also noted the same four species during current field work (Appendix 1). Perhaps, as virtual herbaria are updated additional specimens from the islands will be represented online.

Beriault et al. (2003) reported 52 species from Dismal Key and approximately 53 species from Fakahatchee Island. They listed *Eugenia uniflora* for both islands, a species that we do not report presently. Unlike ourselves, for Dismal Key they also listed *Kalanchoe pinnata* and *Spathodea campanulata*, and for Fakahatchee Island they reported *Dalbergia ecastaphyllum*, *Eugenia foetida*, and short-leaved fig (probably *Ficus citrifolia*; John Beriault, personal communication of Dec. 30, 2011). We did report sterile *Kalanchoe* sp. for Dismal Key which might correspond to the *Kalanchoe pinnata* that Beriault et al. (2003) found there.

We documented five species as new for Collier County: *Aloe vera*, *Cereus repandus*, *Dimocarpus longan*, *Setaria chapmanii*, and *Sporobolus pyramidatus* (The Florida State University Biology Department Robert K. Godfrey Herbarium 2011; The New York Botanical Garden 2011; University of Florida Herbarium Collections Catalog 2011; Virtual Herbarium 2011; Wilder & McCombs 2006; Wilder & Roche 2009; Wunderlin & Hansen 2011a). Also, fifty-two species represent additions to Burch's (1998) inventory of the vascular plants of Rookery



TABLE 2. Comparisons made with previously published inventories of vascular plants. Between parentheses, following a species name the letter *R* signifies a species presently documented that represents an addition to Burch's (1998) inventory of the vascular plants of Rookery Bay National Estuarine Research Reserve; *M* indicates a species presently documented that Wilder and Roche (2009) and previous workers had not documented during previous studies of Marco Island. \* = a species exotic within Florida; all other species, possibly excluding *Oxalis* sp., are native to Florida.<sup>1</sup>

<i>Abutilon permolle</i> (R, M)	<i>Cyperus filiformis</i> (R, M)	<i>Oxalis</i> sp. (R)
<i>Acacia tortuosa</i> (R, M)	<i>Cyperus ovatus</i> (R)	<i>Pectis glaucescens</i> (R, M)
<i>Acalypha ostryifolia</i> (R, M)	<i>Cyperus planifolius</i> (R, M)	<i>Pentalinon luteum</i> (R)
* <i>Agave sisalana</i> (R)	* <i>Dicliptera sexangularis</i> (M)	<i>Physalis angulata</i> (M)
* <i>Aloe vera</i> (R, M)	<i>Digitaria ciliaris</i> (R)	<i>Plumbago zeylanica</i> (R)
* <i>Annona squamosa</i> (R, M)	* <i>Dimocarpus longan</i> (R, M)	<i>Portulaca rubricaulis</i> (R, M)
* <i>Antigonon leptopus</i> (R)	* <i>Eragrostis ciliaris</i> (R)	* <i>Senna atomaria</i> (R, M)
<i>Argemone mexicana</i> (R)	* <i>Euphorbia tirucalli</i> (M)	<i>Senna ligustrina</i> (M)
* <i>Bothriochloa ischaemum</i> (R, M)	<i>Galactia striata</i> (R)	* <i>Senna obtusifolia</i> (R)
* <i>Bothriochloa pertusa</i> (R)	<i>Gossypium hirsutum</i> (M)	<i>Setaria chapmanii</i> (R, M)
<i>Cakile lanceolata</i> (M)	* <i>Heteropogon contortus</i> (R)	<i>Setaria macrosperma</i> (R)
<i>Celosia nitida</i> (R, M)	<i>Ipomoea alba</i> (R)	* <i>Solanum lycopersicum</i> (R)
<i>Celtis iguanaea</i> (R, M)	<i>Ipomoea hederifolia</i> (R, M)	* <i>Spondias purpurea</i> (R, M)
* <i>Cereus repandus</i> (R, M)	* <i>Jatropha gossypifolia</i> (R, M) <sup>2</sup>	<i>Sporobolus domingensis</i> (R)
<i>Chamaesyce ophthalmica</i> (R)	* <i>Kalanchoe daigremontiana</i> (R)	<i>Sporobolus pyramidatus</i> (R, M)
<i>Cheilanthes microphylla</i> (M)	* <i>Kalanchoe delagoensis</i> (R)	* <i>Stachytarpheta cayennensis</i> (R)
<i>Chromolaena odorata</i> (R, M)	<i>Lasiacis divaricata</i> (R, M)	* <i>Tecoma stans</i> (R)
<i>Cissus trifoliata</i> (M)	<i>Leptochloa dubia</i> (R, M)	<i>Tournefortia volubilis</i> (R)
<i>Coccoloba diversifolia</i> (M)	<i>Malvastrum corchorifolium</i> (R)	* <i>Urochloa distachya</i> (R)
* <i>Cryptostegia grandiflora</i> (R, M)	* <i>Manilkara zapota</i> (M)	* <i>Urochloa fusca</i> (R)
<i>Cynanchum angustifolium</i> (R)	<i>Maytenus phyllanthoides</i> (R, M)	

<sup>1</sup>Burch listed no species of *Oxalis*. Because we could not identify our sterile *Oxalis* material to species, we could not ascertain whether it was native or exotic.

<sup>2</sup>Burch (1998) listed *Jatropha* sp. as the sole species of *Jatropha*.

Bay National Estuarine Research Reserve; 29 and 22 of those species are native to, and exotic within, Florida, respectively (*Oxalis* sp. is excluded from the latter two tallies; Table 2).

Marco Island is the largest island within the Ten Thousand Islands region and is situated 5.5 and 9.8 miles northwest of Dismal Key and Fakahatchee Island, respectively (as measured from the village of Goodland at the eastern edge of Marco Island). Thirty-five presently reported species were not previously documented for Marco Island, a location where Wilder and Roche (2009) had noted 470 infrageneric taxa (species, subspecies, varieties, and a hybrid). Twenty-four and 11 of the 35 species are native to, and exotic within, Florida, respectively (Table 2). Although, Marco Island shares many species with Dismal Key and Fakahatchee Island, it differs from the two islands, as follows: Marco Island is much larger than the other two islands, collectively; it is extensively developed; it exhibits dissimilar substrates (seven kinds of soils [Liudahl et al. 1998] and one small, highly disturbed shell mound); it manifests additional habitat types; and it connects via roads to the Florida mainland. Certain of those aspects have likely contributed to the floristic differences from Dismal Key and Fakahatchee Island.

Previous literature indicates that within shell-mound forests situated south of Tampa and Cape Canaveral, Florida "... white stopper [*Eugenia axillaris*], Florida swampprivet [*Forestiera segregata*], strangler fig [*Ficus aurea*], saffron plum [*Sideroxylon celastrinum*], and gumbo limbo [*Bursera simaruba*] are the most commonly encountered woody species" (Florida Natural Areas Inventory 2010). That conclusion matches present findings, i.e., all five species were common on Dismal Key and Fakahatchee Island.

### Concluding Remarks

We suspect that the prehistoric Indian inhabitants of Dismal Key and Fakahatchee Island kept those islands clear of wild vegetation. Vegetation would have impeded foot travel, limited living space, obstructed visibility, and blocked canals. Furthermore, the Indians would not likely have tolerated the cacti and other armed species that pervade the islands today. We envision that plants migrated naturally onto the islands following the annihilation/departure of the Indians. Migration likely ensued at least 200 to 250 years ago, a conclusion that we

base on Tebeau's (1965, 1968) statements that, by 1800, virtually all Calusa Indians had disappeared from South Florida, and on Marquardt's (2004) finding that "...the Calusa ceased to exist in Florida as a distinct society by 1750 ..." The incoming plants likely originated from surrounding areas.

The Calusa Indians were a nonagricultural people. Never-the-less, they may have introduced and favored three species now present on one or both of the islands: *Carica papaya*, *Celtis iguanaea*, and *Gossypium hirsutum*. Each of these species has been utilized by primitive American peoples (Austin 2004; Ward 2011).

Certainly the island floras are less pristine today than they once were. As indicated, the non Indian inhabitants degraded native vegetation by building houses and other structures, by practicing farming, and by maintaining livestock; they also introduced nonagricultural exotics (Beriault et al 2003; Seely 2010). On each island, following habitation by non Indians the exotic species, particularly *Schinus terebinthifolia*, were partially eradicated by spraying herbicide, by clearing, and/or by burning (Beriault et al. 2003). Those activities were undertaken in order to diminish major threats to the diversity of native species on the Islands; however, they might have had unplanned short-term negative effects on the Island floras.

#### APPENDIX 1<sup>1</sup>

List of species and higher-level taxa documented during the present study, together with additional data.<sup>2</sup> For certain species, listed after a species name is/are a relevant synonym (between brackets), an indication of whether the species is rare on Dismal Key and/or Fakahatchee Island, and/or the designation of the species by the Florida Exotic Plant Pest Council (FLEPPC). Individual species were observed either solely on Dismal Key, solely on Fakahatchee Island, or at both locations. Presented, beneath a species name, is/are the five-digit Wilder and McCombs<sup>3</sup> collection number(s) of voucher specimen(s) and habitat data for that species. Collection numbers in italics and in bold font represent the species from Dismal Key and Fakahatchee Island, respectively. For a species found on both islands, the habitat data presented are a summation of habitat data from both islands. After the name of each family and suprafamilial taxon, between parentheses are included two numbers which signify, respectively, the numbers reported presently of genera and species within that family or suprafamilial taxon. \* = exotic in Florida<sup>4</sup>; □ = endemic to Florida; CHH = coastal hardwood hammock; FLEPPC I and FLEPPC II = taxa recognized as Category I or Category II species, respectively, by the Florida Exotic Plant Pest Council (2011); IT = insolated terrain; MANG = mangrove habitat; Rare DK = rare on Dismal Key; Rare DK, FI = rare on Dismal Key and Fakahatchee Island; Rare FI = rare on Fakahatchee Island; habitat with "c" signifies occurrence of a species in a small, overgrown cemetery on Fakahatchee Island, that was encircled by coastal hardwood hammock; habitat with "i" signifies occurrence of a species at the boundary between coastal hardwood hammock and insolated terrain; habitat with "ii" signifies occurrence of a species at the boundary between mangrove habitat and insolated terrain; habitat with "iii" signifies occurrence of a species at the boundary between coastal hardwood hammock and mangrove habitat.

#### PTERIDOPHYTES (3, 3)

##### Polypodiaceae (2, 2)

- Phlebodium aureum* (L.) J. Sm.; rare DK; 31186; CHH<sup>1</sup>  
*Pleopeltis polypodioides* (L.) E.G. Andrews & Windham; rare DK, FI;  
 31717, **31327**; CHH

##### Pteridaceae (1, 1)

- Cheilanthes microphylla* (Sw.) Sw.; 31246, **30545**; CHH; IT

#### MONOCOTYLEDONS (23, 39)

##### Agavaceae (1, 2)

- *Agave decipiens* Baker; 30930, **31889**; CHH; IT  
 \**Agave sisalana* Perrine; FLEPPC II; **31796**; CHH; IT

##### Amaryllidaceae (1, 1)

- Hymenocallis latifolia* (Mill.) M. Roem.; 31250, **31581**; CHH; IT

##### Asphodelaceae (1, 1)

- \**Aloe vera* L.; **32233**; IT

##### Bromeliaceae (1, 8)

- Tillandsia balbisiana* Schult. & Schult. f.; 31137, **31599**; CHH;  
 MANG; IT  
*Tillandsia fasciculata* Sw.; 31208, **30768**; CHH; MANG; IT  
*Tillandsia flexuosa* Sw.; 31141, **30652**; CHH; MANG; IT  
*Tillandsia paucifolia* Baker; 31136, **32882**; CHH; MANG; IT  
*Tillandsia recurvata* (L.) L.; 31309, **31979**; CHH; MANG; IT  
*Tillandsia setacea* Sw.; 31880, **31981**; CHH; MANG; IT  
*Tillandsia usneoides* (L.) L.; 31191, **30779**; CHH; MANG; IT  
*Tillandsia utriculata* L.; 31252, **30847**; CHH; MANG; IT

##### Commelinaceae (1, 1)

- Commelina erecta* L.; 31192, **30821**; CHH; IT

##### Cyperaceae (2, 5)

- Cyperus filiformis* Sw. [*Cyperus floridanus* Britton ex Small]; 31715,  
**30748**; CHH, CHH<sup>1</sup>; IT  
*Cyperus ovatus* Baldwin [*Cyperus retrorsus* Chapm.]; 31719, **31707**; IT  
*Cyperus planifolius* Rich.; 31544, **30089**; MANG; IT  
 \**Cyperus rotundus* L.; 32873; IT

*Fimbristylis cymosa* R. Br.; 32175, **31268**; IT

### Orchidaceae (2, 2)

*Encyclia tampensis* (Lindl.) Small; 32012, **31978**; CHH; MANG; IT  
\**Oeceoclades maculata* (Lindl.) Lindl.; rare DK, FI; 31546, **31063**; CHH

### Poaceae (13, 18)

- \**Bothriochloa ischaemum* (L.) Keng; Rare FI; **30839**; IT  
\**Bothriochloa pertusa* (L.) A. Camus; 32863; IT  
*Cenchrus echinatus* L.; Rare FI; **32865**; IT  
\**Dactyloctenium aegyptium* (L.) Willd. ex Asch. & Schweinf.; FLEPPC II; 31528, **31576**; IT  
*Digitaria ciliaris* (Retz.) Koeler var. *ciliaris*; Rare FI; **31700**; IT  
\**Eragrostis ciliaris* (L.) R. Br.; **30775**; CHH  
*Eustachys petraea* (Sw.) Desv.; 31187, **30747**; IT  
\**Heteropogon contortus* (L.) P. Beauv. ex Roem. & Schult.; Rare FI; **32866**; CHH  
*Lasiacis divaricata* (L.) Hitchc.; **30038**; CHH  
*Leptochloa dubia* (Kunth) Nees; 31718, **31734**; IT  
\**Melinis repens* (Willd.) Zizka [*Rhynchelytrum repens* (Willd.) C.E. Hubb.]; FLEPPC I; 31117, **30843**; IT  
*Setaria chapmanii* (Vasey) Pilg. [*Paspalidium chapmanii* (Vasey) Davidse & R.W. Pohl]; 32870, **31701**; IT  
*Setaria macrosperma* (Scribn. & Merr.) K. Schum.; 31879; IT  
*Sporobolus domingensis* (Trin.) Kunth; 31184, **31577**; IT  
\**Sporobolus Jacquemontii* Kunth; 31190; IT  
*Sporobolus pyramidatus* (Lam.) Hitchc.; **32867**; IT  
\**Urochloa distachya* (L.) T.Q. Nguyen [*Urochloa subquadripara* (Trin.) R.D. Webster]; Rare DK; 32872; IT  
\**Urochloa fusca* (Sw.) B.F. Hansen & Wunderlin; 31529, **30040**; IT

### Ruscaceae (1, 1)

\**Sansevieria hyacinthoides* (L.) Druce; FLEPPC II; **32247**; CHH; IT

## DICOTYLEDONS (112, 130)

### Acanthaceae (1, 1)

*Dicliptera sexangularis* (L.) Juss.; 31984, **30824**; CHH, CHH<sup>iii</sup>; IT

### Aizoaceae (1, 1)

*Sesuvium portulacastrum* (L.) L.; 31195, **31338**; MANG; IT

### Amaranthaceae (4, 4)

*Alternanthera flavescens* Kunth; 31213, **30850**; CHH; MANG; IT  
*Blutaparon vermiculare* (L.) Mears; 31857, **31277**; MANG; IT  
*Celosia nitida* Vahl; **31745**; CHH  
*Iresine diffusa* Humb. & Bonpl. ex Willd.; 31547, **31986**; CHH; IT

### Anacardiaceae (3, 3)

\**Mangifera indica* L.; Rare FI; **32250**; CHH  
\**Schinus terebinthifolia* Raddi; FLEPPC I; 31746, **31711**; CHH; MANG; IT  
\**Spondias purpurea* L.; Rare DK; 32093, **31548**; CHH

### Annonaceae (1, 1)

\**Annona squamosa* L.; Rare DK; 32317; CHH<sup>i</sup>

### Apocynaceae (2, 2)

\**Catharanthus roseus* (L.) G. Don; Rare FI; **30749**; CHH<sup>i</sup>  
*Pentalinon luteum* (L.) B.F. Hansen & Wunderlin; Rare DK, FI; 31530, **31988**; IT

### Asclepiadaceae (3, 3)

\**Cryptostegia grandiflora* R. Br.; **32088**; CHH; IT  
*Cynanchum angustifolium* Pers.; 32179, **32129**; IT  
*Sarcostemma clausum* (Jacq.) Roem. & Schult.; Rare DK; 31890; IT

### Asteraceae (9, 9)

*Baccharis halimifolia* L.; Rare DK; 31747; IT  
*Bidens alba* (L.) DC.; 31040, **30851**; IT  
*Borrchia frutescens* (L.) DC.; 31215, **31583**; MANG; IT

*Chromolaena odorata* (L.) R.M. King & H. Rob.; **32014**; CHH; IT  
*Eupatorium capillifolium* (Lam.) Small ex Porter & Britton; Rare DK, FI; 31216, **30750**; CHH

*Melanthera nivea* (L.) Small; 31196, **30852**; IT  
*Pectis glaucescens* (Cass.) D.J. Keil; 32874; IT  
\**Sonchus oleraceus* L.; Rare DK, FI; 31041, **30935**  
*Verbesina virginica* L.; 31721, **32094**; CHH; IT

### Avicenniaceae (1, 1)

*Avicennia germinans* (L.) L.; 31533, **31339**; MANG

### Bataceae (1, 1)

*Batis maritima* L.; 31042, **32132**; MANG; IT

### Bignoniaceae (1, 1)

\**Tecoma stans* (L.) Juss. ex Kunth; **30090**; CHH; IT

### Boraginaceae (2, 2)

*Heliotropium angiospermum* Murray; 31197, **30854**; CHH; IT  
*Tournefortia volubilis* L.; **30057**; CHH

### Brassicaceae (2, 2)

*Cakile lanceolata* (Willd.) O.E. Schulz; 32089, **30757**; IT  
*Lepidium virginicum* L.; 31212, **30855**; IT

### Burseraceae (1, 1)

*Bursera simaruba* (L.) Sarg.; 31122, **30780**; CHH; IT

### Cactaceae (3, 4)

*Acanthocereus tetragonus* (L.) Hummelinck [*Acanthocereus pentagonus* (L.) Britt. & Rose]; 29857, **31675**; CHH; MANG; IT  
\**Cereus repandus* (L.) Mill. [*Cereus peruvianus* (L.) Mill.]; Rare FI; **32736**; CHH  
*Opuntia humifusa* (Raf.) Raf.; **32299**; IT  
*Opuntia stricta* (Haw.) Haw.; 29818, **32300**; CHH; MANG; IT

### Capparaceae (1, 2)

*Capparis jamaicensis* Jacq. [*Capparis cynophallophora* L.]; 29703, **31280**; CHH; MANG; IT  
*Capparis flexuosa* (L.) L.; 29705, **30828**; CHH; MANG; IT

### Caricaceae (1, 1)

*Carica papaya* L.; 31862, **30860**; CHH; IT

### Celastraceae (1, 1)

*Maytenus phyllanthoides* Benth.; **32045**; MANG

### Celtidaceae (1, 1)

*Celtis iguanaea* (Jacq.) Sarg.; Rare DK; 31921; CHH

### Chenopodiaceae (2, 2)

*Atriplex pentandra* (Jacq.) Standl. [*Atriplex cristata* Humb. & Bonpl. ex Willd.]; 31253, **30461**; MANG; IT  
*Suaeda linearis* (Elliott) Moq.; 31534, **31589**; MANG

### Combretaceae (2, 2)

*Conocarpus erectus* L.; 31722, **31281**; CHH; MANG; IT  
*Laguncularia racemosa* (L.) C.F. Gaertn.; 31254, **31282**; MANG

### Convolvulaceae (1, 5)

*Ipomoea alba* L.; Rare DK; 31863; MANG  
*Ipomoea hederifolia* L.; **32875**; IT  
*Ipomoea indica* (Burm.) Merr.; 31046, **30937**; CHH; MANG; IT  
\**Ipomoea triloba* L.; 31748, **31803**; MANG; IT  
*Ipomoea violacea* L.; 32877, **31749**; MANG<sup>ii</sup>

### Crassulaceae (1, 3)<sup>5</sup>

\**Kalanchoe daigremontiana* Raym.-Hamet & H. Perrier; **32015**; CHH; IT  
\**Kalanchoe delagoensis* Eckl. & Zeyh.; **32095**; CHH  
\**Kalanchoe pinnata* (Lam.) Pers.; FLEPPC II; **31989**; CHH  
\**Kalanchoe* sp. (sterile)<sup>5</sup>

**Cucurbitaceae (1, 1)**

*Melothria pendula* L.; 31047; CHH; IT

**Euphorbiaceae (5, 6)**

*Acalypha ostryifolia* Riddell ex J.M. Coult.; Rare FI; **30058**; CHH<sup>c</sup>

*Chamaesyce hypericifolia* (L.) Millsp.; 31257, **30758**; IT

*Chamaesyce ophthalmica* (Pers.) D.G. Burch; 31258, **30786**; CHH; IT

\**Euphorbia tirucalli* L.; **30759**; CHH

\**Jatropha gossypifolia* L.; **30938**; IT

*Poinsettia cyathophora* (Murray) Bartl.; 31198, **30861**; CHH<sup>i</sup>; IT

**Fabaceae (13, 15)**

*Acacia tortuosa* (L.) Willd.; 32260; IT

*Caesalpinia bonduc* (L.) Roxb.; 31867, **31809**; CHH; MANG; MANG<sup>ii</sup>

*Canavalia rosea* (Sw.) DC.; Rare DK, FI; 31536, **32261**; MANG<sup>ii</sup>; IT

\**Crotalaria incana* L.; 31283, **30867**; IT

*Dalbergia ecastaphyllum* (L.) Taub.; 32885; CHH<sup>iii</sup>

\**Delonix regia* (Bojer ex Hook.) Raf.; Rare DK, FI; 32096, **31284**; CHH<sup>i</sup>; IT

*Erythrina herbacea* L.; 32563, **30787**; CHH; IT

*Galactia striata* (Jacq.) Urb.; 32262, **32098**; CHH; IT

\**Leucaena leucocephala* (Lam.) de Wit; FLEPPC II; **31869**; CHH

*Piscidia piscipula* (L.) Sarg.; 31228, **30788**; CHH; IT

*Pithecellobium unguis-cati* (L.) Benth.; 31900, **30939**; CHH; IT

\**Senna atomaria* (L.) H.S. Irwin & Barneby; 31267; CHH; IT

*Senna ligustrina* (L.) H.S. Irwin & Barneby; 31752, **32001**; CHH<sup>i</sup>, CHH<sup>c</sup>; IT

\**Senna obtusifolia* (L.) H.S. Irwin & Barneby; 31753, **32878**; IT

*Sophora tomentosa* var. *truncata* Torr. & A. Gray; 31229, **30868**; MANG; IT

**Loasaceae (1, 1)**

*Mentzelia floridana* Nutt. ex Torr. & A. Gray; 31200, **32075**; CHH; IT

**Malvaceae (5, 5)**

*Abutilon permolle* (Willd.) Sweet; 29680, **30796**; CHH; IT

*Gossypium hirsutum* L.; 31901, **32053**; MANG; IT

*Malvastrum corchorifolium* (Desr.) Britton ex Small; Rare FI; 31261, **32879**; IT

*Sida antillensis* Urb. <sup>6</sup>; 31262, **32100**; CHH; IT

\**Thespesia populnea* (L.) Sol. ex Corrêa; Rare FI; FLEPPC I; **30762**; CHH<sup>i</sup>

**Moraceae (1, 1)**

*Ficus aurea* Nutt.; 31238, **31694**; CHH; IT

**Myrsinaceae (1, 1)**

*Ardisia escallonioides* Schiede & Deppe ex Schltdl. & Cham.; 31127, **31916**; CHH

**Myrtaceae (3, 4)**

*Eugenia axillaris* (Sw.) Willd.; 29745, **30801**; CHH; IT

*Eugenia foetida* Pers.; 31538; CHH; IT

*Myrcianthes fragrans* (Sw.) McVaugh; 31239, **31275**; CHH; IT

\**Psidium guajava* L.; Rare FI; FLEPPC I; **32101**; CHH

**Nyctaginaceae (2, 2)**

*Boerhavia diffusa* L.; 31203, **30763**; IT

*Pisonia aculeata* L.; 31129, **30464**; CHH; MANG; IT

**Oleaceae (1, 1)**

*Forestiera segregata* (Jacq.) Krug & Urb.; 31990, **30869**; CHH; IT

**Oxalidaceae (1, 1)**

*Oxalis* sp. (sterile); 32880; CHH<sup>i</sup>

**Papaveraceae (1, 1)**

*Argemone mexicana* L.; Rare FI; **30764**; IT

**Passifloraceae (1, 1)**

*Passiflora suberosa* L.; 31211, **30870**; CHH; IT

**Phytolaccaceae (2, 2)**

*Petiveria alliacea* L.; 31539, **32103**; CHH

*Rivina humilis* L.; 31131, **30871**; CHH; IT

**Plumbaginaceae (1, 1)**

*Plumbago zeylanica* L. [*Plumbago scandens* L.]; 31871, **31754**; CHH; IT

**Polygonaceae (2, 3)**

\**Antigonon leptopus* Hook. & Arn.; FLEPPC II; 31204, **31697**; CHH<sup>c</sup>, CHH<sup>i</sup>

*Coccoloba diversifolia* Jacq.; 32402, **31872**; CHH; IT

*Coccoloba uvifera* (L.) L.; 31919, **32268**; CHH; MANG<sup>ii</sup>

**Portulacaceae (1, 2)**

*Portulaca oleracea* L.; 31205, **30832**; IT

*Portulaca rubricaulis* Kunth; 31242, **32694**; IT

**Rhamnaceae (1, 1)**

\**Colubrina asiatica* (L.) Brongn.; Rare FI; FLEPPC I; **31810**; MANG<sup>ii</sup>

**Rhizophoraceae (1, 1)**

*Rhizophora mangle* L.; 31541, **31276**; MANG

**Rubiaceae (4, 4)**

*Chiococca alba* (L.) Hitchc.; 31264, **31698**; CHH; IT

*Morinda royoc* L.; 29768, **31287**; CHH; IT

*Psychotria nervosa* Sw.; 31133, **30808**; CHH; IT

*Randia aculeata* L.; 32403, **30809**; CHH; IT

**Rutaceae (1, 1)**

\**Citrus* sp.; Rare DK; 31992; CHH

**Sapindaceae (3, 3)**

*Cardiospermum microcarpum* Kunth.; 32196, **31874**; CHH; IT

\**Dimocarpus longan* Lour.; Rare DK; 31134; IT

*Sapindus saponaria* L.; 31756, **30469**; CHH; IT

**Sapotaceae (3, 4)**

*Chrysophyllum oliviforme* L.; 32576, **32104**; CHH

\**Manilkara zapota* (L.) P. Royen; Rare DK; FLEPPC I; 32881, **31993**; CHH

*Sideroxylon celastrinum* (Kunth) T.D. Penn.; 31183, **30833**; CHH; MANG; IT

*Sideroxylon foetidissimum* Jacq.; 31243, **30470**; CHH; IT

**Scrophulariaceae (1, 1)**

*Capraria biflora* L.; 31050, **30810**; CHH; IT

**Solanaceae (4, 6)**

*Capsicum annuum* L.; 31055, **30471**; CHH; CHH<sup>i</sup>; IT

*Lycium carolinianum* Walter; 31244, **31289**; MANG

*Physalis angulata* L.; 31792; IT

*Physalis* sp. <sup>7</sup>; Rare FI; **30872**; CHH

*Solanum americanum* Mill.; Rare FI; 31056, **30874**; CHH; IT

\**Solanum lycopersicum* L. [*Lycopersicon esculentum* Mill.]; Rare FI; **30873**; CHH<sup>i</sup>

**Sterculiaceae (1, 1)**

*Waltheria indica* L.; Rare FI; **30816**; IT

**Surianaceae (1, 1)**

*Suriana maritima* L.; Rare FI; **32883**; IT

**Verbenaceae (2, 3)**

\**Lantana camara* L.; FLEPPC I; **32105**; CHH<sup>c</sup>

*Lantana involucrata* L.; 32021, **31290**; CHH; IT

\**Stachytarpheta cayennensis* (Rich.) Vahl; [*Stachytarpheta urticifolia* Sims.]; FLEPPC II; 31920, **30818**; CHH; IT

**Vitaceae (2, 3)**

*Ampelopsis arborea* (L.) Koehne; Rare FI; **32884**; CHH

*Cissus trifoliata* (L.) L.; 31542, **30765**; CHH; IT

*Cissus verticillata* (L.) Nicolson & C.E. Jarvis; 31266, **30766**; CHH; MANG<sup>ii</sup>; IT

<sup>1</sup>We follow the nomenclature of Wunderlin and Hansen (2011), with four exceptions. (1) We recognize four families which they subsumed within other families. Between parentheses, after the name of each family that we recognize is listed the corresponding family in Wunderlin and Hansen (2011): Asclepiadaceae (Apocynaceae), Capparaceae (Brassicaceae), Chenopodiaceae (Amaranthaceae), and Sterculiaceae (Malvaceae). (2) We recognize varieties of *Digitaria ciliaris* (Retz.) Koeler, as did Wipff (2003). Wunderlin and Hansen (2011) did not do so. (3) We recognize *Setaria chapmanii* (Vasey) Pilg., as did Rominger (2003), whereas, Wunderlin and Hansen (2011) called this species *Paspalidium chapmanii* (Vasey) Davidse & R.W. Pohl. (4) We recognize *Sporobolus jacquemontii* Kunth, as did Peterson, Hatch, and Weakley (2003), whereas, Wunderlin and Hansen (2011) called this species *Sporobolus indicus* var. *pyramidalis* (P. Beauv.) Veldkamp.

<sup>2</sup>We lack habitat data for *Kalanchoe* sp. of Dismal Key and for *Sonchus oleraceus* on both islands.

<sup>3</sup>Ms. Martha McCombs contributed importantly to SWF; hence, on the label of each herbarium sheet George Wilder's name and Martha McCombs' name precede the collection number, a circumstance not duplicated in this Appendix.

<sup>4</sup>We follow Wunderlin and Hansen (2011) in designating whether species are native or exotic within Florida, with one exception, viz., *Carica papaya*. Wunderlin and Hansen (2011) deemed *C. papaya* as exotic within Florida. Ward (2011), however, considered this species native, based on certain previous workers' excavations of papaya seeds from a former Indian settlement in Lee Co., Florida, which were dated to "... no later than 300 A.D." We accept Ward's (2011) conclusion.

<sup>5</sup>*Kalanchoe* sp. might be equivalent to one of the other species of *Kalanchoe* reported here; hence, *K.* sp. is excluded from the summations of species of Crassulaceae and of dicotyledons.

<sup>6</sup>In accordance with Wunderlin and Hansen (2011), we recognize *Sida antillensis* Urb.; however, it appears likely that "...this is not a good species" and that it will probably be subsumed into *Sida ulmifolia* Mill. (Dr. Bruce Hansen, pers. comm. of Dec. 1, 2011).

<sup>7</sup>Although, we could not identify *Physalis* sp. to species (our material lacked flowers at anthesis), this species was not *Physalis angulata* L., a species also reported herein.

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